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Incentives to Informality: Evidence from Mexican Job Flows

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Abstract

This paper inquires whether informal workers (self-employed and salaried employed) have incentives for informality as modern approaches have suggested. We analyse the job flows of Mexico, as observed through four waves of a comprehensive survey conducted at household level between years 2001 and 2004. For each macro-region of the country, we build a set of Markov transition matrices for testing the disposition or propensity of workers to move across sectors. Individual panel data are then estimated in order to assess the wage differentials between formal and informal workers. We find evidence of stronger incentives to become informal worker in the less developed regions of the country rather than in the more industrialized and innovative ones. However, some degree of segmentation often prevents workers from reacting to the incentives. Our results suggest that different regions of Mexico have different patterns of employment and that such patterns are related to the regional level of development.

1. Introduction

Economic liberalization, investment patterns and technical innovation are having a dramatic impact on employment around the world, and Mexico is not an exception. However, there is no single meaning of economic liberalization for workforce. The impact of these phenomena can be negative or positive and differs by industry, by legal status and by region across and within countries. Although increasing attention is given to the impact of liberalization on labour, there is a bias towards looking at the impact of liberalization on formal wage work and, to a lesser extent, on
informal employment.

In the particular case of Mexico, the benefits of the liberalization strategy have been highly concentrated across the territory and this has affected informal employment rates. Official data have recorded a wide variation and a divergent dynamics of the informality rates across the different regions

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of Mexico (INEGI, 2004). While the northern states – a region that as result of the liberalization process was able to attract the more productive an innovative industries – have reduced their informality rates, the states located in the less developed south have experienced a substantial increase in the share of workers characterized by an informal status.

What is the reason behind this heterogeneous and divergent pattern of employment? How has the differential of regional productivity impacted informal employment? Traditional wisdom would blame the pattern of regional economic growth of such performance. This approach would suggest that in the poor south not enough jobs are created for all the people seeking jobs. As a result, many frustrated formal job seekers find employment or create their own work in the informal economy. On the other hand, it could be argued that the rich north – given its economic performance- has been able of creating jobs for a growing population. Therefore, in this traditional framework, informal activities can be seen as a sort of last resort for those who missed getting a formal position.

However, more recent theories see also the informal sector as a valid source of employment, where the worker can show her/his initiative and entrepreneurial spirit. Hence, the worker is assumed to be a rational agent who is able to calculate the costs and benefits that a particular legal status implies. In such context, a highly productive formal sector could entail better wages and thus augment the opportunity cost of informal jobs. In addition, a more productive formal sector could offer better and more efficient social benefits (e.g. health insurance), thus becoming more attractive to workers than informal activities. Under this perspective, southern and central formal economies are not attractive enough to workers and provide an incentive for the creation of informal jobs.

The remarkable polarization detected in Mexico and the existence of proper data gives us the unique opportunity of testing the foregoing hypotheses. In particular, this work aims to study the following questions. What is the relationship, if any, between informality and the level of regional development? Are there empirical elements to support any of the competing theories explaining informality? How has the increasing concentration of more productive and innovative activities affected the pattern of informal employment across Mexico?

We rely on data collected by the official Mexican Institute of Statistics, Geography and Informatics (INEGI) as part of the National Survey of Employment (ENEU). This survey has been conducted at

house and urban level in the 44 major metropolitan areas of Mexico. Among others, we find some evidence of a positive wage premium for formal salaried jobs relative to less-favoured jobs in the informal sector; (i.e. informal salaried and, particularly, self-employed involved in agricultural activities). On the other hand, our results show that those workers who switch from formal salaried jobs to non agricultural informal self-employed ones perceive a wage premium. Interestingly, this result changes across regions: while in the less developed region of the country (south) this premium is positive and significant; in the north such premium is negative, even if non significant. This suggests the presence of stronger incentives to become informal worker in the less developed regions of the country than in more industrialized ones and seems to corroborate the hypothesis that workers in less productive economies have economic incentives to engage informal jobs.

The paper is structured as follows. In section 2 we describe some antecedents and the Mexican economic context. In particular, we highlight the spatial concentration of the most productive industries on certain regions of Mexico as a consequence of the liberalization process carried out in the mid eighties in Mexico. In section 3, we describe the general pattern of employment in the less developed countries and state a brief review of the competing approaches to informal employment. In section 4, we introduce the data and the operational definition used. In the same section, we proceed to classify our data according to region, type of work, legal status (formal and informal) and industry. In section 5 we estimate at individual level, and for each region separately, the factors driving the incidence of informality for the various components of employment (self-employment, salaried employment), and we look at the wages determinants by means of Mincerian equations. In section 6, applying transition matrixes, we estimate worker flows among the different sectors of the labour market across the different regions of Mexico in order to prove if determined type of mobility holds true across the different regions of Mexico. In section 7, individual two time panel (one year length period) data are used to assess the wage differentials between formal and informal. Those differentials provide a measure of earning changes associated with job-to-job transitions across employment sectors. The final section (8) concludes and provides suggestions for further research.

2. Antecedents. Mexico as a polarized economy

After the mid eighties, in order to liberalize its economy, Mexico drastically reformed its strategy of development and modified its institutional set-up. The basic idea behind these economic reforms was

that a strategy based on international trade and free competition would solve the persistent problems of inflation, growth and employment that characterized the Mexican economy during a large part of the second half of the 20th century[§] (Dussel, 2000; Stallings and Weller, 2001; Weller, 2001; Palma, 2003).

Among the main economic goals proposed by the advocates of this new strategy of development, it is important to mention the following two (Dussel 2000): to transform Mexico's productive sector from import-substitution to export-orientation, and to transform the manufacturing export-oriented sector in the motor of socioeconomic development. Towards these objectives, in 1986 a crucial step was taken by Mexico becoming full member of the General Agreement of Tariffs and Trade (GATT) and initiating a gradual elimination of some restrictions to foreign investment, in particular of those directed to capital and technical investments.

Considering its main aims, the liberalization period has been relatively successful. Indeed, inflation rates decreased substantially reaching up one-digit levels during the second part of the 1990s. Furthermore, Mexico was particularly successful in attracting foreign investments during the same period: Dussel reports that, in terms of gross capital formation, foreign direct investment increased from levels below 6% to more than 20% during the 1990s. In this context, private manufacturing exports became the main motor of economic growth in Mexico, accounted for more than 85% of Mexico's total exports since the second half of the 1990s. Within manufacturing, maquiladoras shares has increased from 50.7 % in 1991 to 54.8 % in 2004 (Capdevielle, 2008).

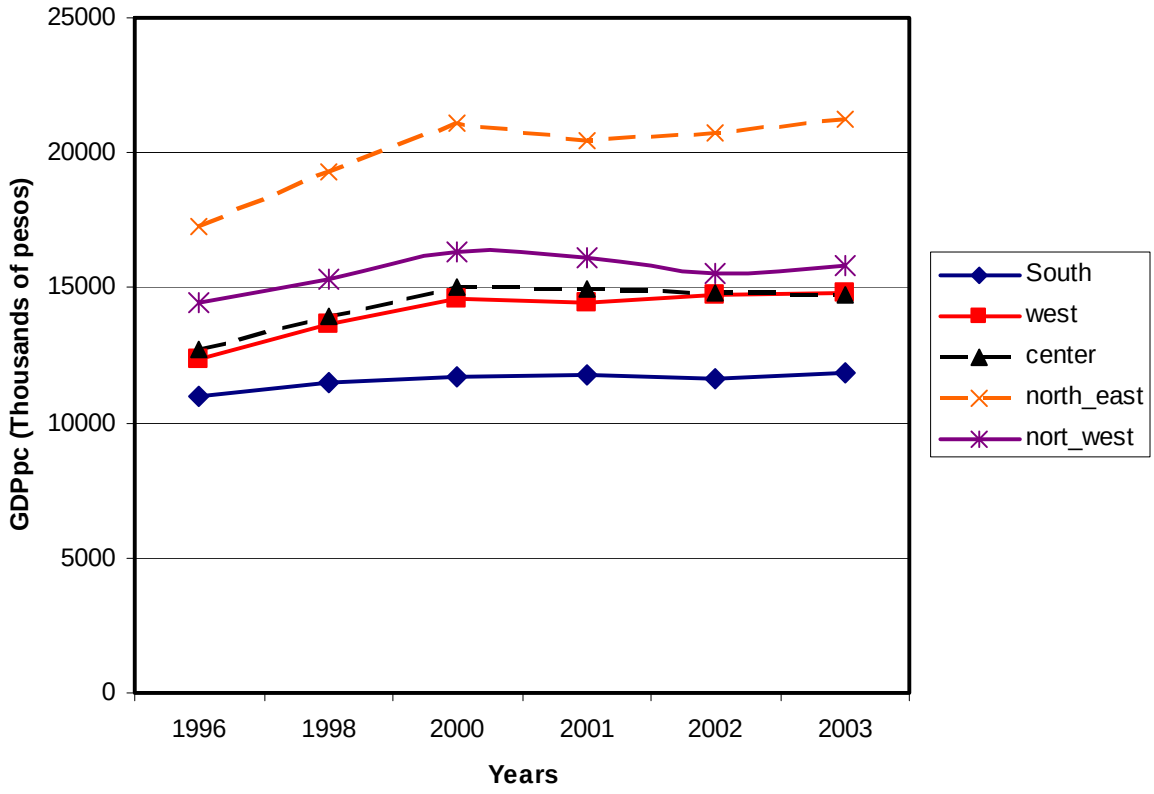
However, the benefits across the territory have been highly concentrated: given their proximity to the U. S. market and larger endowments of communications, transportation and energy infrastructures, the initially richer northern states have been able to attract massive foreign direct investment and concentrate the more productive and innovative industries (Besnainou and Davezies, 1998; Dussel, 2000; Chiquiar, 2004). Instead, the central and southern states hardly exhibited an improvement in their

[§] The period prior to the implementation of the liberalization strategy in Mexico, 1982-1987, was one of profound socioeconomic instability: the Mexican government was under enormous pressure to service an external debt of more than 70% of GDP (gross domestic product), while inflation rates and the fiscal deficit, as a percentage of GDP, accounted for levels above 160% and 16%, respectively (Villarreal, 2000).

economic performance. As a result, and considering that average GDP per capita growth has not increased substantially in the last twenty years, there has been a widening of the "North-South" gap in Mexico (see figure 1)

Figure 1

Regional GDP per capita 1996-2003

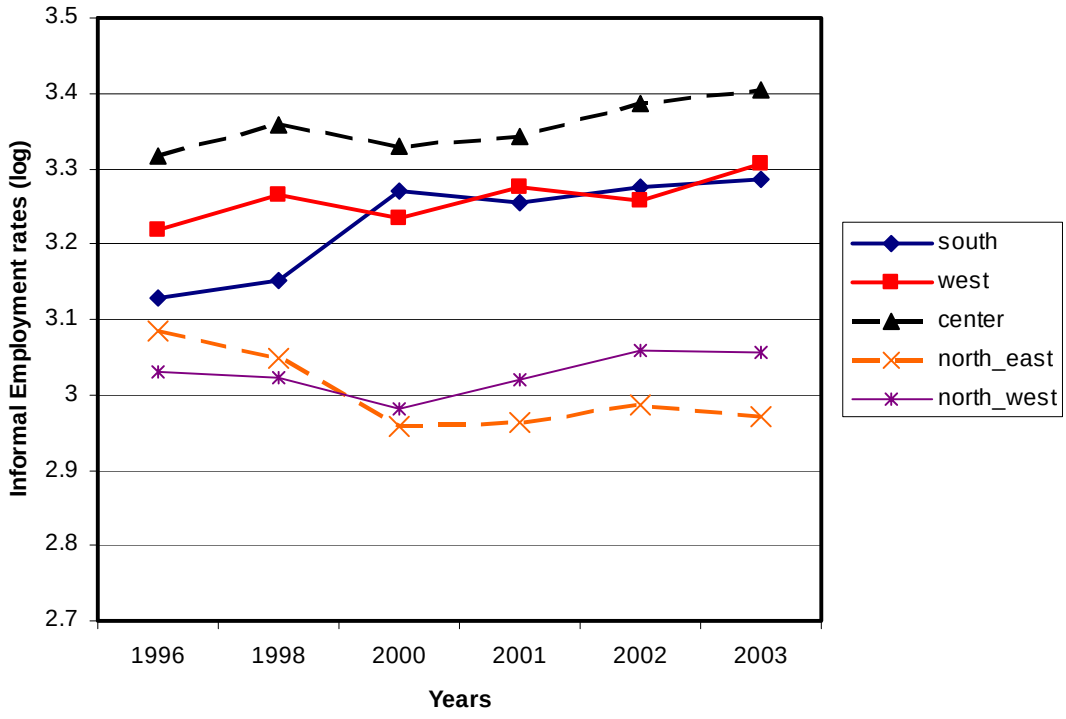


Source: Own elaboration based on INEGI estimations.

In spite of all these reforms, the average trend of employment has not gained any significant impulse and open unemployment in Mexico could actually be considered erratic. In addition, concerning informal employment, statistics provided by INEGI reveal a wide variation across the different regions of Mexico for the 1996-2003 period. This heterogeneous pattern is illustrated in figure 2 , which shows not only that informal employment rates are lower in the industrialized north than in the less developed centre and the backward south, but also that, in the north (north-east), informality rates tend to

decrease, while in the centre and south they stay constant or even increase[**]. Such heterogeneity deserves more attention that it has received so far.

Figure 2
Regional Informality Rates 1996-2003



Source: Own elaboration based on INEGI estimations (INEGI, 2004).

OLS (pooled) estimations are applied in order to confirm the correlation between the log of informal-employment rates and the logarithm of GDP per capita (GDPpc). In these estimations, we rely on data provided by INEGI that regards aggregate information on 32 states of the Mexican Republic in a period from 1996 to 2003 (excluding 1997 and 1999).

Our cross section estimations (table 1) essentially support the largely accepted hypothesis that the level of development (GDP) is negatively correlated to informal employment rates (Lewis, 1954; Kuznets,

[**] INEGI (2004) has classified as informal the following activities: a) non registered self employed b) employed in non-registered micro-firms c) non- salaried workers in non- registered micro-firms d) non-registered workers in micro-firms without fixed location e) remunerated workers with a maximum of two months length contract in a registered micro firm f) remunerated workers without contract and without social security in non-registered micro-firms g) remunerated workers without contract and without social insurance in a micro firms without fixed location.

1966; Lucas, 1970; Cimoli et al, 2005). In addition, those regional dummy variables reinforce the previous empirical finding: they show a negative and statistically significant correlation between the northern states (the more developed ones) and informality and a positive correlation between informality rates and the central states (centre)[††].

Table 1

OLS Pooled Regressions				
Informal Employment Determinants (log)				
Variable	**Coef.**	**Std. Err.**	**t**	**P>t**
GDPpc (log)	-0.085	0.019	-4.48	0
schooling	-0.047	0.014	-3.36	0.001
Female Labour Force (%)	0.016	0.004	4.13	0
South Region	-0.009	0.027	-0.32	0.747
Centre	0.135	0.027	5.08	0
northeast	-0.128	0.034	-3.79	0
northwest	-0.149	0.029	-5.07	0
Constant	3.836	0.188	20.36	0

Dependent variable: informal employment rates by state (log)

The former result would suggest that informal -employment is a kind of 'sponge' providing subsistence for those who could not find better alternatives. However, the mechanism through which the level of development contributes to reduce informality is not clear. Traditional wisdom could attribute the pattern of employment in the northern regions to a massive investment in formal sectors that lead to the creation of formal employment. Instead, the backward south economy was not able to create the new jobs required by a growing labour population and has forced many workers to enter the informal sector. However, more recent theories suggest that the increasing informality might be voluntary and related to the low productivity of the regional formal sector. We turn to this issue in the following section.

[††] In addition, we have controlled for some demographic (female labour force participation) and educational variables. Our results show a positive and statistical significant relationship between the level of informality rates and female labour force participation and a negative and significant one between schooling and levels of informal employment. These results are very in line with a large literature on the social demographic characteristics of the informal sector and self-employment. (Freije, 2001; Pietrobelli et al, 2004).

3. Describing the pattern of employment in less developed countries: introducing the informal sector

It is broadly accepted that in less developed countries the widely used employment/unemployment dichotomy – appropriated for industrialized countries – is a poor measure of labour market rigidity and does not contribute to clarify the analysis of labour quality. In fact, as pointed out by Bourguignon (2005), in less developed countries the absence of formal employment insurance systems implies that open unemployment is limited to a small number of people who have enough resources to wait until a job with the characteristics they are looking for actually opens[‡‡]. Thereby, the very poor are not unemployed: they are constrained to work in low-remunerative, low-productive forms of activity.

Recognizing that the employment/unemployment dichotomy is too simplistic, we should look for new approaches to assess the performance of labour markets in less developed countries. In this context, the informal/formal dichotomy has been proposed by many authors as a concept that would describe better the employment pattern in Mexico and give a proper indication of job quality.
In fact, the informal sector presents some characteristics that deserve attention: a) informal activities have low productivity; b) informal activities escape taxes and erode the legal system; c) informal workers lack social protection and medical insurance.

In spite of a large literature produced in the last years, the nature of the informal sector still remains nebulous and controversial: while some authors consider informal activities as survival ones, the others consider them as an integrated and competitive group of activities. The first and most traditional school considers the informal sector as a group of disadvantaged activities, where workers enter only as a last resort opportunity (Fields, 2004, 2005). The thesis behind this hypothesis is that the formal sector is rationed because several structural and economic reasons and is, therefore, unable to fulfil the social requirements of labour supply. In this way, the informal sector becomes equivalent to the labour surplus mentioned by Arthur Lewis[§§] in his well known seminal work (Lewis, 1954, Harris and Todaro, 1970; Tokman, 1989, Ros; 2000, Cimoli et al 2005)[***]

[‡‡] Our data point out that Mexican unemployment rate is very low. Moreover, they show that the average schooling of unemployed people is higher that the average education of the total labour force. It could be interpreted as evidence than only that open unemployment is limited for those workers with enough resources to wait.
[§§] Lewis A (1954). "Economic Development with Unlimited Supplies of Labour".
[***] Portes & Schauffler (1993) presents a good review of the different perspectives concerning informal employment.

The traditional school has been challenged by a new stream, which considers the informal worker as rational and competitive. This view assumes that the economic units are free to choose where to work depending on the costs and benefits that an informal legal status entails (De Soto, 1987; Maloney, 1999; Erickson, 2002; Gong X and van Soest A, 2002; Maloney, 2004). Thereby, this school refuses the idea that informal workers are in a less advantaged position and that they are the poorest in the economy. On the contrary, it is argued that they are competitive and could be easily compared to the voluntary small firms and self-employed people in most developed economies rather than being a distinct phenomenon.

Actually, this second approach claims that informality is a natural part of a worker life cycle in a developing country. According to this view, young workers start their productive life in the informal salaried sector in order to get some initial training. Then, they move to the formal salaried sector where they accumulate physical and working capital which is used in latter steps to fund informal enterprises. If their business is successful, then they become formal and proper entrepreneurs. Therefore, this view considers informality as a necessary step in the life cycle of the workers in order to acquire skills and/or capital to carry out future entrepreneurs. This idea of informality as an entrepreneurial activity is by far the World Bank's favourite explanation of the phenomenon.

According to Maloney (2004), arguing that workers are voluntarily informal does not imply that they are not poor. It implies only that they will not be in a much better situation if they were having the formal jobs for which they are qualified. In other words, even though there are better job positions in the formal sector, many workers cannot access them simply because they are not qualified enough. That is to say, by entering informality they are simply making the best choices they can, given their low level of education and their preferences.

It does not imply that the level of formal sector productivity does not play a role in determining the size of the informality rates. In fact, a more productive formal sector provides an incentive to the salaried worker by augmenting returns to wage work and raising the opportunity cost of managing. A more productive formal sector could offer better and more efficient social benefits (e.g. healthy insurance) becoming, in this way, more attractive to workers than informal activities. Summing up, this perspective considers that workers are free to choose between different packages of benefits and opportunities offered by various types of job (formal and informal jobs) of similar quality measured

along a set of labour characteristics. Basically these are the main Maloney's hypothesis which is quite similar to those expressed by Lucas about self-employment[†††] (1978).

Finally, there is a more modern theory that mixes the two opposite views exposed above and classify informal activities in 'upper-tier' and 'lower-tier' . This new approach to informality argues that some activities within the informal sector could be preferable to some activities in the informal one. Recently some empirical works have presented evidence that seems to confirm this hypothesis (Fields, 2005; Lehmann and Pignatti, 2007).

4. Data and Operational Definition

The data are provided by the ENEU[‡‡‡] (INEGI). This ENEU survey is structured as an occupation track of sample units across a five quarters period. The sample data is divided equally into five waves and follows the usual procedure of rotation, i.e. one wave enters and one leaves at each quarter.

To generate a sufficiently large sample of roughly 32000 observations, four ENEU cohorts (waves) were combined: 2001:4-2002:3, 2002:1-2002:4, 2002:2-2003:1 2003:4-2004:3 Workers were matched by household, role gender, level of education, and age to ensure against generating spurious transitions. The data have been structured as a two time panel data set, where the first point in time is formed by the following cohorts: 2001:4, 2002:1, 2002:2 and 2003:4. The second period is constituted by the rest. Sample units are interviewed once per quarter and contribute with one transition pair.

4.1 The Operational Definition and Data classification

We roughly follow the operational definition of ILO[§§§] by dividing workers into four earning sectors: formal salaried, informal salaried, formal self-employed and informal self-employed and two non-earning ones: no-pay and out of labour force. However, differently from most of the empirical works of this institution, our classification considers all the dimensions of informality: the size of the firm, the

[†††] As recognized by Pietrobelli el al (2004), in less developed countries self-employment and informal employment are very correlated phenomena.
[‡‡‡] National Survey of Employment.
[§§§] ILO (International Labour Organization) classifies as informal the following activities: self-employed workers (with the exception of liberal professionals, administrative personal, professionals and technical staff), unpaid family workers and both employers and employees from small firms, as well as domestic workers.

legal status and the lack of healthy insurance or social security. We argue that this kind of definition is more accurate and reliable than the definitions which use only one or two dimensions of informality.

For our classification, we proceed as follows:

First we proceed to classify our data according to type of employment:

1. *Self Employed*, i.e. owners of micro-firms (less than 15 if they work in the manufacturing sector, less than six otherwise) or own accounts;
2. *Employees or salaried workers*, i.e. those remunerated workers who are not independent;
3. *Non-pay workers*, i.e. non remunerated dependent workers;
4. *Out of the labour force*, i.e. students, persons engaged in domestic duties, housewives, pensioners and other dependent on remittances.

Owners of medium and big firms and open unemployed are dropped since they account only for a very small fraction of the sample.

Then, we proceed to identify the worker's legal status

A self-employed worker is classified as informal if s/he lacks registration and/or fixed location. Instead, a salaried worker is classified as informal if s/he is engaged in micro firms and lacks contract or/and social insurance. Some contributions classify non-pay workers as informal ones, but we have decided to keep them as a separated group in order to avoid unnecessary mixtures. The final classification can bee seen in table 2

Table 2
Employment Classification by Legal Status

Employment Sector	Status	Firm Size	Health Insurance	Legal Situation	ID
Self-Employed	Formal	Micro	Undefined	Legally Registered Firm	**FSE**
Salaried	Formal	Small, Medium Big	Yes	Legally Registered Firm	**FS**
Self-Employed	Informal	Micro	No	No-Registered Firm	**ISE**
Salaried	Informal	Micro	No	No-Registered Firm	**IS**
No-Pay	-	Any	Undefined	Undefined	**Nopay**
Out of Labour Force	-	-	-	-	**OLF**

Industry Classification

In order to take into account the structural composition, we have classified the workers on the basis of type of the industry where they are engaged. Our data allow us to disaggregate them in six industrial sectors: Construction, Modern Manufacturing, Traditional Manufacturing, Modern Services, Traditional Services and Other Sectors. Due to their different nature, agricultural activities have been excluded from most of our estimations. When those activities are included, it will be clearly expressed.

In the case of Manufacturing, we have followed the Pavitt taxonomy adapted for the Mexican context to classify activities (Pavitt, 1984; Dutrénit G. and M. Capdevielle, 1993). In this way, those activities classified as "supplier dominated" in the Pavitt framework are denominated in the present work as Traditional Manufacturing. The rest of manufacturing (i.e., scale intensive, specialised suppliers and science based) are grouped in Modern Manufacturing.

For the particular case of services, we have categorized as "modern" all those activities potentially related to modern technology or international trade. In doing so, our classification of the "modern

services" sector includes financial services, telecommunications and specialized services. Traditional services sector is integrated mainly by trade and hotels and restaurants. Finally, in Other Sectors we include mining and water, gas and electricity.

Our data show that Informal workers are concentrated in traditional sectors (Table A.1.1) such as traditional manufacturing (44.36 %), construction (77.72 %) and traditional services sectors (47.83 %). Consequently, most of the modern activities are concentrated in the formal sector even if an important share of the formal sector is still constituted by traditional activities. This pattern of employment holds true elsewhere in Mexico.

Region Classification

Finally, we proceed to define the main regions of the country by dividing the 32 national Mexican states in three regional areas characterized by similar geographical and economic features. Our classification recognizes three macro-regions: North, Centre and South, and is based on the National Plan of Development (Plan Nacional de Desarrollo 1999)[****]. This plan is a project carried out by the Mexican Presidence of the Republic and aims at "[contributing] to change and speed up the pace of the Mexican productive structure through an economic strategy based on various factors."[††††]

Our data confirm that, in effect, the employment patterns vary drastically across Mexican regions. In fact, our results show some evidence that industrial activities are distributed and concentrated in specific regions. Thus, the north presents the highest rates of modern manufacturing, a feature which is clearly related to the outstanding presence of Maquiladoras (Table A.1.2). In addition, they show that informal employment rates are higher in the south and in the centre than in the north, as stated in section 2 (Table A.1.3).

[****] Actually, the national plan of development recognizes five meso-regions: south, west, centre, north east and north west. However, in order to maximize our job transitions, we have merged data from west and centre (Centre) and from north west and north east (North).

[††††] Secretaria de Gobernación (Ministry of government). *Plan Nacional de Desarrollo.* (p.p.4) (www.gobernacion.gob.mx/compilacion_juridica/webpub/Prog02.pdf).

5. Some Descriptive Estimations

As a first step, we perform logit regressions in order to determine the correlation between the different variables and the probability of belonging to the informal group of workers. These regressions include, as empirical specifications, individual characteristics such as age, age squared, schooling, gender, weekly hours worked, as well as the different industries in which employment has been disaggregated. Logit estimations are recorded in tables A.2.1-A.2.4.

Roughly speaking, these results statistically support the pattern described in the previous section (section 4). On the one hand, they show that the probability of holding an informal job increases if the worker is engaged in traditional sectors such as construction activities and traditional manufacturing and services, and such probability decreases when they are involved in the most innovative industries of the economy (Modern Manufacturing and Services and Other Sectors). On the other hand, as expected, the formal sector is positively associated to the more modern sectors. In general, this pattern is evident throughout all the regions without exceptions

These equations also provide information concerning the basic specification of the individual determinants of informality. Our results show an important and positive correlation between age and the probability of belonging to the informal sector as self employed in both formal and informal modalities; and a significant and negative correlation between age and the probability of belonging to informal salaried employment. This pattern holds true across all the Mexican regions and seems to corroborate Maloney's hypothesis (see section 3) that workers start their work life cycle in informal salaried jobs, moving to other sectors only later.

Summing up, even though the values of logit coefficients change across regions, a general pattern emerges: the probability of belonging to the informal self-employment sector increases with low education and age. Instead, the probability of belonging to the informal salaried employment increases with low education and decrease with age. In both cases, such probability increases if the worker is engaged in traditional and non-tradable sectors. The only variable for which an effect changes across regions is gender. Indeed, our regressions shows that the probability of holding an informal job increases if the worker is male in the north; however, this variable is non significant neither in the south nor in the centre. Concerning the formal employment sector, exactly the opposite pattern is observed.

This pattern could be partially explained by regional specialization: it is well known that, in the north, maquiladoras (a sector which is highly related to formality) have generated a considerable number of jobs which have gone to young single women without work experience (Iglesias, 1997).

Additional and important information is provided by the data related to wages. Following the tradition of a well established empirical literature, we estimate Mincerian (or earning) equations by ordinary least squares, where the dependent variable is given by the natural logarithm of hourly wages. Tables A.3.1-A.3.4 report the estimates of these Mincerian equations. We first estimate the data as a whole. Age is significant and positive for all the sectors. On the other hand, the gender variable is always very significant and shows that being male in Mexico reports a premium and such premium is higher for self employed workers (around 38%) than for formal salaried ones (13.4%). That is to say, concerning gender, that the informal sector is more unequal that the formal one. Understanding the reason behind this result is not easy and goes beyond the aims of this paper. However, a possible explanation would be that in a non-regulated sector some male characteristics (e.g. aggressiveness and physical strength) could exert a positive influence on wage.

Finally, Mincerian equations provide some additional and descriptive information. First, the wage premium to schooling results always and everywhere positive and significant. In addition, our Mincerian equations report that self employed workers in the informal sector receive a wage premium if they are engaged in the service sector and report an opposite effect if they work in Traditional Manufacturing. Instead, formal workers receive such premium if they work in Modern Manufacturing, Modern Services and Other Sectors. Construction always reports positive returns for both informal and formal sectors. This pattern holds across all the Mexican regions.

6. Labour Market Mobility

In order to evaluate the mobility pattern of Mexican workers, we rely on the methodology developed by Maloney (1999). Even though this methodology is not universally accepted, it could be useful for detecting differences in the mobility patterns of workers across the different Mexican regions and, in addition, it allows us to compare our regional results to those of Maloney.

Maloney's methodology basically consists of a set of three transition matrixes. The first and simplest transition matrix (labelled as **P**-matrix in the literature) calculates the conditional probabilities of finding a worker in status *j* at *t+k*; conditional on the fact that s/he was in the status i at time t. Each cell of the matrix thus corresponds to

$$pij = p(St+k = j \backslash St = i) = p(St = i \bigcap St+k = j)/ p(St = i) \quad (1)$$

The resultant **P**-matrix gives a raw description of movements among sectors after a certain period of time (one year in this case). Evidently, the diagonal represents the worker's probability to remain in the sector *i* after the same year. We proceed to evaluate the transition matrixes for each region (left panel, Table A.4.1). Our results show that the probability to remain in the formal sectors is always higher than the conditional probability of remaining in the informal ones; those results are in line with Maloney (1999). This stability could be interpreted as evidence of a worker preference for formality and/or that informal activities are the surviving ones that emerge in certain periods of necessity of the workers life cycle and tend to disappear in later stages.

This **P**-matrix could give us some additional interesting information since it allows us to estimate if the conditional probability to move from formal sectors to informal sectors are higher in the less developed regions of the country (i.e. in the south) than in the most developed ones. Towards this objective, we proceed as follow: first we estimate the C-matrix, which is the usual P matrix of each region normalized by the matrix P estimated using the whole data (thus assumed as a benchmark):

$$(C_{ij} = \frac{P_{ijreg}}{P_{ijtotal}}) \quad (2)$$

The **C**-matrices (tables A.4.2) show that the most industrialized north presents some positive dynamics of formal employment. In other words, in the north the standardized probability of moving from an informal sector to a formal one is always higher than the benchmark and the probability to move from a formal sector to an informal one is lower than the same benchmark. On the other hand, an opposite pattern is found in the south. Basically, the **C**-matrices show that it is much easier and/or more

convenient to engage formal activities in the industrialized North rather than in the less developed south and centre.

The panorama changes when we normalize the **P**-matrix by dividing each of its columns by the share of workers in each sector (e.g. P.J) at the end of the period. Following the literature, this normalized matrix will be called **Q**-matrix. The likelihood of moving from one sector to another could also depend on the duration of occupancy of origin and destination sectors *i* and *j* respectively. Maloney assumes that the larger is the time spent in the sector of origin *i*, or the lower the likelihood that a position will open in the sector of destination *j*, the harder is for a worker to move from *i* to *j*. To take into consideration both factors, Maloney developed the so called matrix-**V**, expressed as follows:

$$V_{ij} = \frac{P_{ij}}{P_{\bullet J}(1-P_{ii})(1-P_{jj})} \tag{3}$$

which is the **Q**-matrix multiplied by the product of the duration of state occupancy, in order to account for the existence of churning. It is assumed that this expression captures the level of "difficulty" or the "propensity "of moving from one sector to the other. Essentially, large V-values mean that a worker could spend effort to move to the destination sector even though it is difficult to do so.

Therefore, the larger is the disposition to move from sector i to sector j, the larger V_{ij} should be. Consider the **V**-matrix of a hypothetical economy characterized by strong incentives for informality (large taxes, low level of formal sector productivity, etc.). In this imaginary economy, workers may show a higher "disposition" or "propensity" to move from the formal sector to the informal one than vice-versa. We thus expect the following pattern of worker mobility: $V_{\text{formal-informal}} > V_{\text{Informal-formal}}$. Basing upon this methodology, Maloney (1999)[‡‡‡‡] found that flows from the formal sector to the informal one are as likely as the transitions from informal to formal sectors. This result brings him to conclude that there are strong reasons to question the dualistic view as the primary explanation for the existence of a segmented labour market in Mexico.

[‡‡‡‡] The data used by Maloney (1999) are pretty similar to those used here. However, two differences emerge: first, the data correspond to household surveys conducted in 1990 and 1991; secondly, the operational definition used: by Maloney's classification only relies on the size of the firm.

We now proceed to estimate our Q and V transition matrixes for each region separately (south, Centre, North). The outcomes are represented in tables A.4.1. The **P**-matrix is positioned at the left of those tables, providing a rough description of the transition probabilities we are interested in. In the middle of the table we find the **Q**-matrix that is the transition probability normalized by the size of the destination sector. At the right, there is the **V**-matrix, i.e. the "propensity" to enter in a particular sector.

The results show very symmetric worker flows between formal and informal sectors across all the territory, which is in line with the results obtained by Maloney (1999). In fact, as expected, we find only a slightly higher propensity to move from the informal salaried sector to the formal salaried one. A symmetric pattern of movements is found also for the formal salaried workers who move to informal self employment and vice-versa in the south, as the **V**-matrix shows a slightly larger disposition to move from formal salaried jobs to self-employed ones than vice-versa. However, contrary to what expected, the pattern of mobility in the north is quite similar to that of the south. Instead, in the centre, where the informality rates are higher, there is a slightly larger disposition to move from the informal self-employment sector to formal salaried one than from the latter to the former.

Summing up, we find evidence of the existence in Mexico of symmetric patterns of employment across all the Mexican territory. In addition, our transition matrixes show that the economic or institutional set-up in the most productive and innovative region (north) favours formality.

7. Effect of transition on Wages

We now try to answer the central question of the present document: is there evidence of economic incentives for informality in the less developed regions of the country? Who has those incentives?

We could get a first clue from a comparative analysis between the average earnings of formal and informal workers. Table 3 was obtained after calculating their average level of income (mean and media) for each labour sector. The average formal *self*-employed worker receives a higher remuneration than the informal worker (self-employed or salaried). Moreover, it is worth noting that, on average, workers engaged in agricultural activities are more vulnerable to poverty.

Table 3

Average hourly earning of Formal and Informal Workers

	Agriculture		Formal		Informal		Formal		Informal	
			Self employed		Self employed		Salaried		Salaried	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
National	6.69	2.95	24.14	13.5	17	12.9	22.86	15.67	11.87	10.59
south	4.84	2.32	18.11	12.6	13.11	9.49	21.53	12.87	9.19	8.4
centre	7.19	3.14	21.5	12.6	18.17	14.8	22.42	15.1	12.69	11.25
North	10.45	5.72	35.1	18	20.8	15.7	24.29	16.84	13.88	12.38

Own estimations based on the national survey of employment (INEGI)

The previous results seem to confirm the idea of a poor and unproductive informal sector and seem to suggest that, in general, workers should prefer to belong to the formal sector. However, it is difficult to distinguish if a worker, given her/his skills and characteristics, would actually perceive such benefits when moving from the informal sector to the formal one.

Differences in predicted wages provide a measure of earning changes associated with job-to job transitions across employment sectors. Taking advantage of the panel dimension of our data, we estimate the following dynamic model:

$$\Delta(\ln w_{i(t)}) = \sum_j \sum_k \mathrm{B}_{jk}\left(S_{ik(t)} * S_{ij(t-1)}\right) + \mu X_{i(t)} + \sum_h \delta_h T_t + \sum_m \sum_n \phi_{mn}\left(I_{im(t)} * I_{im(t-1)}\right) + \alpha + \varepsilon_{it} \quad (4)$$

where the left hand side is the log hourly earning change of worker *i* between year *t* and year *t-1*; $\left(S_{ik(t)} * S_{ij(t-1)}\right)$ is a vector of dummy variables for each possible transition from any state *j* in *t-1* to any state *k* in time *t*; $\left(I_{im(t)} * I_{im(t-1)}\right)$ is a vector which controls for each possible transition from any industry *m* at *t-1* to any industry *n* at any time *t*, X is a vector of individual characteristics, i.e., gender, age, education (before treatment), sector of origin; *T* is a time fixed effects vector. This dynamic model allows us to control for unobservable variables that affect the wage level.

We proceed to run our wage differential equation (table 4). In this case, wage differentials regressions report a premium for those workers moving from formal salaried positions to informal self-employed in the southern (25.3%) and central (23.7%) regions. Instead, in the north such premium result negative,

even though non-significant (-4.2%). That is to say, if we assume rationality, that formal salaried workers have more incentives to become informal self-employed in the less developed regions than in the more developed ones and that this incentive is important. Such result seems to support Maloney and Lucas' hypothesis which, as we have seen in section (3), states that in a wealthy economy a worker would prefer to be formal salaried since, in such context, the returns to wage work and therefore the opportunity cost of being self-employed increases.

Table 4
Wage Differentials Estimations
(Excluding agricultural workers)

	National	**South**	**Centre**	**North**
From Informal Self-Employed to	Delta Wages			
Formal Salaried	-0.068	-0.108	-0.036	-0.088
	-1.19	-0.9	-0.43	-0.93
Informal Salaried	-0.069	-0.109	0.017	-0.145
	-1.48	-1.3	-0.26	-1.6
From Formal Salaried to				
Informal Self-employed	0.15	0.253	0.237	0.042
	(2.61)**	(2.39)*	(2.51)*	-0.47
Informal Salaried	-0.051	-0.064	-0.071	-0.016
	(-1.43)	(-0.89)	(-1.36)	(-0.22)
From Informal Salaried to				
Formal Salaried	0.095	0.08	0.125	0.079
	(2.67)**	-1.16	(2.50)*	-1.25
Informal Self-employed	0.255	0.202	0.35	0.395
	(5.43)**	(2.53)*	(4.85)**	(5.20)**
Observations	8360	2362	3586	2814
Absolute value of t statistics in parentheses				
* significant at 5%; ** significant at 1%				
Source: National Survey of Employment (INEGI)				

On the other hand, the estimates for those workers moving from self-employed informal activities to formal salaried ones differ from the previous results: they show a non significant wage premium across all the Mexican territory without exception. This fact is quite interesting since it would suggest that an important share of the working population would prefer to work in the formal sector rather than in the formal one even if they do not perceive any economic advantage in doing so. It would also indicate that those workers moving from informality to formality are different from those moving from formality to

informality. These issues require further exploration and represent, in our consideration, interesting avenues for future research.

However, our results also suggest that the informal self-employment sector would result economically attractive for workers in less advantaged sectors. In fact, our estimations show that informal employed workers perceive a positive economic premium if they move to self-employment. A direct implication would be that many of those salaried informal workers have incentives to switch to the self-employment sector and probably they do so as soon as this opportunity presents to them.

Even more significant economic incentives to move to urban informality would be provided to workers of the agricultural sector. Indeed, it is well known that the main casualties of the post liberalization period were agricultural activities, in particular those characterized by traditional techniques and rain-fed land, which usually are geographically concentrated in the south of the country. This relationship between the worsening of agricultural performance and the increasing incidence of informality in the southern would not be casual.

Table 5
Wage Differentials Estimations

Delta Wages	Coefficient	Std. Err.	t	P>t
From agricultural self employed to				
Informal self-employed (urban)	1.304616	0.139083	9.38**	0
Formal Salaried (urban)	1.131683	0.137857	8.21**	0
Informal Salaried (urban)	1.224548	0.115782	10.58**	0
* significant at 5%; ** significant at 1%				
Source: National Survey of Employment (INEGI)				

In order to prove the presence of economic incentives for moving from agricultural activities to urban ones, we proceed to run our wage differential equation when including agricultural activities. Our results (table 5) show that there is a significant wage improvement for those workers moving from informal self employed positions in the agricultural sector to informal self-employment urban activities and that this wage improvement are as important as those produced by movements to the formal salaried sector. Even though we do not have enough transitions to analyze region by region, we expect this pattern to hold true across all the regions. A very similar outcome is found for movements between

the agricultural activities and salaried activities in the urban informal sector. Summing up, our data show an important wage premium for urban activities over agricultural ones.

These results reveal the presence of important wage differentials within the informal self-employment sector, between non-agricultural and agricultural activities. They imply also that, in the current social and economic Mexican context, at both aggregate and individual level, the informal urban activities are preferable to low productive agricultural activities[§§§§]. It seems that rural conditions have not changed over time and that the incentives to migrate from the countryside to the urban are still valid as they were when Harris and Todaro wrote their seminal paper (1970)[*****].

8. Conclusions

Making use of a rich dataset and a taking advantage of an increasing Mexican regional polarization, in this work we have investigated the following questions: a) do the determinants of informality have general validity or are they specific of particular regions; b) what are the patterns of worker mobility across Mexican Regions?; c) do those factors have general validity or are they specific of particular regions?; d) are there empirical elements to support any of the competing theories explaining informality; e) how has the increasing regional concentration of more productive and innovative activities affected the pattern of informal employment?

Broadly speaking, our regressions show similar patterns concerning the individual determinants of informal employment across regions; i.e. the probability of belonging to the informal self-employment sector increases with low education and age: those results are in line with most of the previous literature on informality and self-employment. In addition, as expected, our estimations shows that the probability of belonging to the informal sector increases when the worker is engaged in non-tradable and/or traditional sectors such as construction, traditional services and traditional manufacturing.

[§§§§] This result is in line with Orlando (2001) who argues that the poorest sector in the Venezuelan economy is composed by informal workers engaged in agricultural activities.

[*****] Notice that, as it is well known, working with wage data almost necessarily entails some shortcomings. In fact, it is not clear if in informal self-employment worker's earnings account for return of capital and other costs such as the briberies that often the informal worker is compelled to pay in order to be allowed to continue with their illegal activities. For all these reasons, the quantity reported in the data base should be considered only as a rough estimation of real wages.

We find also a similar pattern of mobility across the different Mexican regions when using a set of Markov transition matrices. Nonetheless, a difference among the different regions emerges: since the probability to enter or to remain in the formal sectors is higher in the northern than in the southern macro-region, it is clear from our transition matrixes that the institutional set-up favours informality in the less developed regions vis-à-vis the more developed ones.

In order to test if such differences are due to the presence of incentives to informality, we have run wage differential equations. Our results show that those workers who switch from formal salaried jobs to non agricultural informal self-employed ones perceive a wage premium. Interestingly, this result changes across regions: while in the less developed region of the country (south) this premium is positive and significant, in the north such premium is negative, although non significant. This result suggests the presence of stronger incentives to become informal worker in the less developed regions of the country rather than in the more industrialized ones and is in line with the theories that see the informal sector as a voluntary one. However, On the other hand, the estimates for those workers moving from self-employed informal activities to formal salaried ones differ from the previous results: they show a non significant wage premium across all the Mexican territory without exception. It would indicate that those workers moving from informality to formality are different from those moving from formality to informality. These issues require further exploration and represent, in our consideration, interesting avenues for future research.

In addition, we have found some evidence of a positive and important wage premium for formal salaried jobs relative to less-favoured occupations, in particular self-employed agricultural activities. Therefore, the increasing incidence of informality in the less developed region (south and centre) could be partially explained by a “scissor effect” where workers are attracted to informality from the urban formal and agricultural activities. Of course, we are not stating that workers have a preference for informality; we are only observing that the economic incentives to informality are higher in the less developed regions of the country.

Summing up, our results present evidence that different regions of Mexico have different patterns of employment and that such patterns are related to the regional level of development. This collective evidence also suggests that diverse and suitable regional policies should be applied in order to reduce informal employment rates and/or to reinforce and support the development process in Mexico.

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Appendix

TableA.1.1. Employment by Industry and Formal status (%)

	Informal Self-employed	Formal Salaried	Informal Salaried	Total
Construction	26	22.28	51.72	100
Manufacturing (modern)	1.75	96.49	1.75	100
Manufacturing (traditional)	26.67	55.65	17.69	100
Services(Modern)	0.81	98.91	0.27	100
services (traditional)	25.91	52.17	21.92	100
Other Sectors	1.23	96.32	2.45	100

Table A.1.2. Employment by Region and Industry (%)

Region	Construction	Manufacturing (Modern)	Manufacturing (Traditional)	Services (Modern)	Services (Traditional)	othersectors	Total %
National	12.44	2.57	17.31	8.42	57.43	1.84	100
South	11.04	0.32	17.6	9.81	59.91	1.31	100
Centre	15.68	2.82	18.06	7.63	53.79	2.01	100
North	8.92	4.42	15.9	8.21	60.46	2.09	100

Table A.1.3. Employment by Region and Formal Status (%)

	Formal Self Employed	Informal Self-employed	Formal Salaried	Informal Salaried	Total
National	9.99	20.3	49.65	20.06	100
south	10.01	25.67	43.82	20.5	100
centre	10.45	18.71	45.43	25.41	100
north	9.27	17.36	61.8	11.56	100

Source: Own elaboration based on ENEU survey (INEGI).

Table A.2.1

The Determinants of Employment Sector (National)
Logit Estimations

National	SEF	SEI	SF	SI
Age	0.05	0.037	-0.024	-0.047
	(16.93)**	(16.44)**	(12.08)**	(18.44)**
Gender	-0.437	0.024	0.188	0.034
	(5.37)**	-0.35	(3.40)**	-0.48
Schooling	0.085	-0.072	0.09	-0.132
	(10.09)**	(9.37)**	(14.67)**	(15.28)**
Services (Modern)	-1.749	-3.686	3.275	-3.357
	(4.96)**	(8.77)**	(13.11)**	(4.70)**
Services (Traditional)	1.089	-0.23	-0.433	0.377
	(8.13)**	(3.10)**	(6.93)**	(4.70)**
WeeeklyHours	0.032	-0.029	0.012	-0.008
	(13.29)**	(14.66)**	(7.52)**	(4.16)**
Construction		0.127	-1.478	1.706
		-1.28	(15.79)**	(17.43)**
Manufacturing (Modern)		-2.542	2.934	-2.37
		(4.98)**	(8.03)**	(4.64)**
OtherSectors		-3.138	2.987	-1.626
		(4.38)**	(7.08)**	(3.16)**
Constant	-6.737	-0.781	-0.285	1.121
	(28.68)**	(5.41)**	(2.31)*	(7.23)**
Observations	7359	8851	8851	8851
Absolute value of z statistics in parentheses				
* significant at 5%; ** significant at 1%				

Table A.2.2

The Determinants of Employment Sector (South)

Logit Estimations

South	**FSE**	**ISE**	**FS**	**IS**
Age	0.042	0.036	-0.022	-0.047
	(7.73)**	(8.96)**	(5.82)**	(10.06)**
Gender	-0.521	-0.184	0.191	0.394
	(3.44)**	-1.54	-1.8	(2.98)**
Schooling	0.082	-0.085	0.099	-0.108
	(5.30)**	(6.30)**	(8.76)**	(7.24)**
Services (Traditional)	1.178	-0.546	-0.006	0.191
	(4.57)**	(4.28)**	-0.05	-1.31
WeeeklyHours	0.029	-0.024	0.01	-0.003
	(6.78)**	(7.35)**	(3.57)**	-0.85
Construction		-0.235	-0.996	1.389
		-1.26	(5.26)**	(7.45)**
Manufacturing (Modern)		-1.689	1.732	-0.179
		-1.51	(2.01)*	-0.16
Services (Modern)		-3.99	4.362	-3.083
		(5.46)**	(7.28)**	(3.03)**
OtherSectors			2.161	-0.127
			(3.88)**	-0.22
Constant	-6.309	-0.242	-0.903	0.663
	(14.66)**	-1.03	(4.09)**	(2.53)*
Observations	1951	2484	2517	2517
Absolute value of z statistics in parentheses				
* significant at 5%; ** significant at 1%				

Table A.2.3

The Determinants of Employment Sector (Centre)

Logit Estimations

Centre	FSE	ISE	FS	IS
Age	0.056	0.037	-0.021	-0.051
	(12.26)**	(10.64)**	(6.66)**	(13.64)**
Gender	-0.516	0.119	0.203	-0.027
	(4.20)**	-1.09	(2.34)*	-0.27
Schooling	0.105	-0.068	0.085	-0.129
	(8.04)**	(5.50)**	(8.67)**	(10.04)**
Services (Modern)	-1.447	-3.253	2.988	
	(3.25)**	(5.42)**	(8.76)**	
Services (Traditional)	1.116	0.028	-0.696	0.381
	(5.69)**	-0.23	(7.36)**	(3.39)**
WeeeklyHours	0.03	-0.034	0.015	-0.009
	(8.44)**	(10.45)**	(5.94)**	(3.20)**
Construction		0.319	-1.803	1.707
		(2.14)*	(13.09)**	(12.71)**
Manufacturing (Modern)		-2.086	2.565	-2.199
		(2.88)**	(5.50)**	(3.69)**
OtherSectors		-2.795	4.01	
		(2.75)**	(3.96)**	
Constant	-6.891	-0.992	-0.501	1.597
	(19.45)**	(4.12)**	(2.55)*	(6.82)**
Observations	3029	3813	3813	3444
Absolute value of z statistics in parentheses				
* significant at 5%; ** significant at 1%				

Table A.2.4

The Determinants of Employment Sector (North)

Logit Estimations

North	**FSE**	**ISE**	**FS**	**IS**
Age	0.052	0.039	-0.036	-0.036
	(8.98)**	(8.93)**	(9.67)**	(6.61)**
Gender	-0.192	0.318	0.067	-0.378
	-1.2	(2.36)*	-0.64	(2.43)*
Schooling	0.069	-0.035	0.061	-0.179
	(4.21)**	(2.41)*	(5.31)**	(8.53)**
Services (Modern)	-1.494	-4.097	2.931	-2.039
	(2.30)*	(4.02)**	(6.16)**	(1.98)*
Services (Traditional)	0.946	-0.126	-0.537	0.658
	(3.57)**	-0.82	(4.25)**	(3.17)**
WeeeklyHours	0.036	-0.028	0.014	-0.026
	(7.43)**	(6.68)**	(4.16)**	(5.31)**
Construction		0.45	-1.292	1.989
		(2.18)*	(6.94)**	(8.01)**
Manufacturing (Modern)		-2.98	3.732	
		(2.93)**	(3.69)**	
OtherSectors		-2.522	3.231	
		(2.47)*	(3.17)**	
Constant	-7.078	-1.671	0.986	1.288
	(15.12)**	(5.44)**	(3.93)**	(3.34)**
Observations	2132	2521	2521	2356
Absolute value of z statistics in parentheses				
* significant at 5%; ** significant at 1%				

Table A.3.1

Estimated log earnings equations (National)
Mincerian Estimations

National	FSE	ISE	FS	IS
Age	0.024	0.038	0.048	0.03
	-1.84	(5.19)**	(13.66)**	(6.77)**
Age^2	0	0	0	0
	-1.79	(5.49)**	(10.06)**	(5.77)**
Gender	0.401	0.383	0.134	0.241
	(6.47)**	(9.10)**	(7.10)**	(7.36)**
Schooling	0.048	0.05	0.069	0.022
	(7.47)**	(9.24)**	(33.96)**	(5.27)**
Construction	0	0.424	0.282	0.295
	(.)	(6.50)**	(6.75)**	(6.99)**
Manufacturing (Modern)	0	0.112	0.22	0.314
	(.)	-0.28	(5.11)**	-1.14
Services (Modern)	1.042	1.045	0.471	0.38
	(3.48)**	(3.19)**	(14.02)**	-0.97
Services (Traditional)	-0.034	0.209	0.043	0.194
	-0.3	(4.49)**	-1.83	(5.00)**
OtherSectors	0	-0.11	0.245	-0.052
	(.)	-0.2	(4.87)**	-0.19
Constant	1.495	1.008	0.889	1.23
	(4.48)**	(5.68)**	(13.24)**	(13.08)**
Observations	884	1800	4392	1775
R-squared	0.15	0.18	0.43	0.11
Absolute value of t statistics in parentheses				
* significant at 5%; ** significant at 1%				

Table A.3.2

Estimated log earnings equations (South)
Mincerian Estimations

South	**FSE**	**ISE**	**FS**	**IS**
Age	0.037	0.032	0.055	0.035
	-1.45	(2.52)*	(8.03)**	(4.45)**
Age^2	0	0	0	0
	-1.44	(2.59)**	(5.73)**	(3.57)**
Gender	0.318	0.481	0.114	0.452
	(2.88)**	(6.64)**	(3.10)**	(7.90)**
Schooling	0.029	0.04	0.077	0.024
	(2.73)**	(3.89)**	(20.03)**	(3.26)**
Services (Traditional)	0.031	0.312	0.301	0.337
	-0.15	(4.23)**	(5.75)**	(5.16)**
Construction		0.418	0.566	0.453
		(3.48)**	(6.49)**	(6.12)**
Manufacturing (Modern)		0.766	0.986	0.414
		-0.94	(4.21)**	-0.79
Services (Modern)		1.886	0.84	1.188
		(3.25)**	(12.07)**	(2.24)*
OtherSectors		0	0.92	0.268
		(.)	(7.88)**	-1.01
Constant	1.251	0.848	0.187	0.559
	-1.95	(2.80)**	-1.41	(3.43)**
Observations	252	646	1103	516
R-squared	0.09	0.2	0.6	0.27
Absolute value of t statistics in parentheses				
* significant at 5%; ** significant at 1%				

Table A.3.3.

Estimated log earnings equations (Centre)
Mincerian Estimations

Centre	**FSE**	**ISE**	**FS**	**IS**
Age	0.024	0.052	0.043	0.037
	-1.43	(4.78)**	(7.95)**	(6.16)**
Age^2	0	-0.001	0	0
	-1.23	(5.57)**	(5.43)**	(5.94)**
Gender	0.283	0.255	0.13	0.219
	(3.29)**	(3.96)**	(4.58)**	(5.22)**
Schooling	0.053	0.032	0.068	0.014
	(5.55)**	(3.78)**	(22.16)**	(2.64)**
Construction	0	0.358	0.227	0.205
	(.)	(3.78)**	(3.91)**	(3.95)**
Manufacturing (Modern)	0	-0.006	0.031	0.203
	(.)	-0.01	-0.53	-0.69
Services (Modern)	1.253	0.707	0.365	0
	(3.55)**	-1.61	(7.64)**	(.)
Services (Traditional)	-0.236	0.123	-0.079	0.085
	-1.52	-1.63	(2.35)*	-1.75
OtherSectors	0	-0.054	0.123	0
	(.)	-0.07	-1.84	(.)
Constant	1.559	1.159	1.09	1.4
	(3.56)**	(4.19)**	(10.86)**	(11.45)**
Observations	399	714	1730	970
R-squared	0.17	0.16	0.44	0.11
Absolute value of t statistics in parentheses				
* significant at 5%; ** significant at 1%				

Table A.3.3.

Estimated log earnings equations (North)
Mincerian Estimations

North	FSE	ISE	FS	IS
Age	0.013	0.001	0.047	0.023
	-0.46	-0.08	(8.46)**	(2.52)*
Age^2	0	0	0	0
	-0.65	-0.18	(6.96)**	-1.94
Gender	0.612	0.263	0.125	0.079
	(4.48)**	(3.12)**	(4.04)**	-1.02
Schooling	0.06	0.052	0.058	0.025
	(4.31)**	(5.57)**	(16.53)**	(2.39)*
Construction	0	0.136	0.24	0.079
	(.)	-1.03	(3.36)**	-0.68
Manufacturing (Modern)	0	-1.176	0.174	0
	(.)	-1.53	(2.76)**	(.)
Services (Modern)	0.383	0.134	0.499	-0.249
	-0.64	-0.17	(8.56)**	-0.45
Services (Traditional)	0.267	-0.177	0.123	0.172
	-1.12	-1.79	(3.10)**	-1.6
OtherSectors	0	-0.634	0.053	0
	(.)	-0.83	-0.62	(.)
Constant	1.613	2.298	1.16	1.656
	(2.11)*	(6.40)**	(10.44)**	(7.21)**
Observations	233	440	1559	289
R-squared	0.21	0.14	0.33	0.05
Absolute value of t statistics in parentheses				
* significant at 5%; ** significant at 1%				

Table A.4.1

Transition Matrixes

south

P Matrix					Q Matrix				V Matrix			
	OLF	ISE	FS	IS	OLF	ISE	FS	IS	OLF	ISE	FS	IS
OLF	0,889	0,062	0,030	0,019		0,406	0,124	0,192		11,282	7,184	3,842
ISE	0,177	0,674	0,049	0,100	0,348		0,203	0,998	9,651		3,981	6,785
FS	0,038	0,038	0,844	0,081	0,074	0,249		0,808	4,281	4,882		11,425
IS	0,098	0,155	0,199	0,548	0,193	1,021	0,831		3,865	6,942	11,75	

centre

	OLF	ISE	FS	IS	OLF	ISE	FS	IS	OLF	ISE	FS	IS
OLF	0,895	0,040	0,032	0,033		0,411	0,117	0,250		9,1372	7,1489	6,1505
ISE	0,210	0,572	0,083	0,134	0,424		0,302	1,029	9,4233		4,5186	6,2179
FS	0,046	0,027	0,844	0,083	0,093	0,272		0,640	5,6499	4,0735		10,6
IS	0,095	0,095	0,197	0,613	0,191	0,969	0,716		4,6934	5,8567	11,851	

North

	OLF	ISE	FS	IS	OLF	ISE	FS	IS	OLF	ISE	FS	IS
OLF	0,912	0,029	0,039	0,020		0,294	0,109	0,288		9,715	10,855	5,991
ISE	0,162	0,656	0,099	0,082	0,344		0,275	1,201	11,36		7,055	6,411
FS	0,026	0,029	0,887	0,058	0,056	0,289		0,851	5,56	7,412		13,757
IS	0,118	0,163	0,264	0,455	0,250	1,634	0,734		5,21	8,724	11,872	

Table A.4.2
Transition Matrixes

C Matrix: $C_{ij} = \frac{P_{ijreg}}{P_{ijtotal}}$

South					Centre				North			
	OLF	ISE	FS	IS	OLF	ISE	FS	IS	OLF	ISE	FS	IS
OLF	0.99319	1.246	0.81143	0.8041	0.98618	1.0093	0.99985	1.2566	1.0328	0.69543	1.2209	0.76912
ISE	0.85863	1.0976	0.7373	1.0252	1.1962	0.92211	1.0363	1.1234	0.87408	0.97212	1.4208	0.7065
FS	0.81859	1.4586	0.96365	1.1497	1.3126	0.8623	0.96543	1.1924	0.75444	0.86488	1.0634	0.68096
IS	0.89167	1.3398	0.92162	0.95523	0.9808	0.78102	0.90964	1.1016	1.2649	1.1313	1.4552	0.73209